# Evaluating the Nutrition Screening Initiative

Remarkable progress has been made during the past decade in understanding the nutritional needs of the elderly and the relationship of nutrition to the human aging process. The Nutrition Screening Initiative, a nationwide effort to increase public and professional awareness of the importance of nutrition in the elderly, is contributing to that progress. Primarily sponsored by the American Dietetic Association, the American Academy of Family Physicians, and the National Council on the Aging, the Initiative has a worthy goal: to gain attention for the elderly's nutritional problems from the public, health professionals, and government policy and research-granting agencies.

In this issue of the Journal, Posner et al.[1] describe a first effort to evaluate the effectiveness of the Initiative. Specifically, they examine an Initiative checklist for elderly Americans to use to screen themselves for nutritional problems. The list is one of the three key instruments developed by the Initiative; the others are intended for caregivers, particularly those from whom the elderly might seek help after using the screening checklist.

Some serious questions arise about this checklist as a strategy for educating the public about nutrition. The Nutrition Screening Initiative is asking older individuals to screen themselves by using an 11- (formerly a 14-) item checklist of possible nutritional problems. The goal of the screening instrument is announced by its heading, "Determine your nutritional health," and by its suggestion that the person being screened seek help—from public agencies if the person has a positive score of 3 to 5 (of a possible 21) or, if the score is 6 or higher, the "next time you see your doctor, dietician, or other qualified health or social service professional."

Thus, the Initiative goes beyond a traditional effort at health education that might have taken as its primary goal increasing the public's knowledge about nutrition and the elderly. Instead, it aims to alert the elderly that they might be at risk for health problems and that they could profit from professional assistance. The Initiative thus enters into a complex relationship with the person responding to the checklist, a relationship special to screening programs. Screening aims to find preventable or remediable pathology: it asserts to the person screened that he or she is at higher-than-usual risk for a health problem and that, by seeking and responding to help, that risk can be lowered.

What is not clear is whether the basic requirements for screening are being met in this case. The requirements include the following:

1. Any screening procedure must have an acceptable level of sensitivity and specificity, relative to some definitive diagnostic procedure. Sensitivity (the ability to identify true cases) is important where an undetected case might have dire consequences, such as irreversible damage to the individual. Specificity (the ability of the screening procedure to classify correctly those without the condition) is important to avoid labeling someone with an incorrect presumptive diagnosis ("false positivity"). Such false positives might both overburden the health care system and cause unnecessary anxiety, worry, expense, and bother for persons not at risk.

2. The screening procedure for a *presymptomatic* diagnosis (as opposed to case finding for symptomatic disease) must give an adequate advantage in time (the "lead time") over waiting for the individual to appear for care because of symptoms.

3. There must be a proven therapy for the disorder, and earlier treatment (the lead time) must confer benefits over treatment at the time symptoms might otherwise have led to presentation for care.

4. Finally, individual screening and therapy must offer benefits—both for the public health and the economy—over other possible strategies such as universal or community preventive programs.

Let us now consider, on the evidence presented by Posner et al., how well the Nutrition Screening Initiative meets these requirements.

The treatable disorder being screened for by the Initiative checklist is never fully explicated by Posner et al., but it probably can be defined empirically by specifying the criteria against which the screening instrument was validated, namely, the subject's self-report of poor health and the observation that three or more of five selected nutrients (protein, vitamin C, vitamin A, thiamine, calcium) were reported to be below 75% of the adult Recommended Daily Allowance (RDA) on one 24-hour dietary recall about 1 year prior to the checklist interview.

The screening instrument had only minimal success in identifying individuals with the validating criteria: the instrument identified only 45.8% of those who reported poor health and only 36.2% of those who reported low nutrient ingestion. Given the instrument's low sensitivity, it is an open question whether the health condition(s) being screened are really considered by the Nutrition Screening Initiative to be all that serious: what can be the justification for screening when more than half those being sought are missed? Further, it seems fairly clear that the Initiative's two validating criteria—self-reported poor health and low nutrient ingestion—do not fulfill two other essential requirements for implementing a public health screening program, namely, that they are well defined and treatable. Neither criterion is a well-defined pathologic state, nor is there a proven treatment for either. If self-perceived health is a worthwhile criterion, why not simply ask if respondents consider themselves to be in poor health? This question would then in turn be open to the same scrutiny as the currently proposed Initiative checklist: does it define something with adequate sensitivity and specificity, and is there a treatment demonstrably more successful because it is given sooner as a result of screening rather than later (when the symptoms of the condition might ordinarily have led to seeking health care)? If early treatment is advisable, is the health care system ready and able to respond?

Only two of the 14 tested items on the screening instrument were significantly related to perceived poor health: "Because of an illness or condition, I have changed the kind or amount of food I eat," and "I take 3 or more different prescribed or over the counter drugs a day." Approximately 35% to 40% of all elderly respondents answered either of these questions positively. (The rates almost certainly would have been higher if Posner et al. had not eliminated from the analysis about a quarter of the survey population who said they had modified their diet in the time between the dietary recall and the questionnaire.) Even if the Initiative screening instrument could better identify those with perceived poor health, it is unclear what help would be available for them from the nutrition, health, or social service professionals from whom it is suggested that they seek help. The burden placed on the

**Editor's Note.** See related article by Posner et al. (p. 972) in this issue.

system by these self-referrals might be monumental, and the results unpredictable. Also, many of those identified are probably already under medical care (hence the prescribed drugs).

The situation is no better for the other outcome criterion used by Posner et al., a reported intake level under 75% of the RDA for three of the five nutrients, as reported on a 24-hour dietary recall. Only three (different) items on the screening checklist were related significantly to previously reported low intake: "I usually eat less than two [presumably one] meals per day"; "I eat few fruits or vegetables or milk products"; and "Sometimes I don't have enough money to buy the food I need." (Six items were retained on the checklist that related to neither outcome criterion.) However, the evidence is scant that low intakes on one 24-hour recall are an accurate index of low long-term intake, that low long-term intake is associated with overt pathology, that effective programmatic interventions to reverse low intake exist (either for the individual or for populations), or that reversing low intake has demonstrable health benefit other than for rare cases of overt deficiency disease (a possible exception—the reversal of low calcium intake among women—optimally begins in early life, not old age).

Thus, at the cut-off score of 6, the Nutrition Screening Initiative instrument classifies a very large proportion of the elderly population (about 25%) as likely to benefit from the services of a nutrition, health, or social service professional. We have seen that it misses many more persons: over half those it has defined as at risk and nearly two thirds by the dietary criterion. With the checklist's specificity of about 85% for either criterion, how many people does it classify as positive? Almost certainly, it delivers to the system as many or more people who do *not* meet its outcome criteria as those who do. Given the instrument's positive predictive value of 37.9% for the low nutrient-ingestion criterion, 62.1% of those people who screen positive will probably *not* meet this criterion; similarly, 44.4% of those screened positive will probably not meet the self-reported poor health criterion.

What are the alternatives to the Initiative's screening strategy? Because the screening instrument is neither sensitive nor specific to a condition or conditions that have been shown to demonstrably benefit from intervention, might not an educational strategy for the entire population better reflect our current nutritional knowledge? The addition of several nutritional questions to periodic preventive medical visits might be valuable, with the creation and testing of specific algorithms for responses to these questions. Possibly a public educational campaign to present what we do and do not know about principles of good nutrition and health for the American elderly might have real benefits (the Initiative instrument omits any reference to exercise, one of the few issues about which we can be reasonably confident of the value of intervention). What is clear is that the prerequisites for mass public screening by the Nutrition Screening Initiative—whether technical, administrative, or ethical—have not been demonstrated. In the face of both the great need to increase public, professional, and scientific knowledge about nutrition in the elderly, and the paucity of current efforts to do so, the Nutrition Screening Initiative's strategy to educate the public should be modified, and different approaches explored and evaluated. □

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## Reference

1. Posner BM, Jette AM, Smith KW, Miller DR. Nutrition and health risks in the elderly: the Nutrition Screening Initiative. *Am J Public Health.* 1993;83:972–978.

# Health Care Reform: A New Public Health Movement

The demand for reform of the US health system has taken on the proportions of a great social movement. The call for change can be heard from every segment of society, crossing all lines of geography, race, social class, gender, and age. With a new president in office, the issue has risen to the top of the domestic policy agenda, second only to economic reform. That we will have major change is assured; the shape that change will take is at the center of a raging political debate.

Recently there has been a shakeout among strategists for health care reform. Gone are incremental proposals for "fine-tuning the world's best system," and Mr Bush's idea of vouchers for the poor. Now, two contending approaches remain: "managed competition," endorsed by President Clinton and the insurance industry, and "single-payer," the Canadian-style reform, endorsed by a widespread grassroots movement, Physicians for a National Health Program, and the American Public Health Association, among others.

The primary difference between the two strategies, which should be examined carefully by the public health community, is the issue of accountability. Managed competition, with its reliance on a market-based solution to our health care woes, places this responsibility with the insurance industry. Privately owned, for-profit "super-HMOs" are expected to compete for managed care contracts from large employers and group purchasers known as "health insurance purchasing cooperatives." In this scheme it is the insurers who will be responsible for reducing administrative waste, controlling costs and assuring access to care, all the while reaping the profit from the venture if income exceeds cost. There is no evidence they will succeed. Managed competition is untested anywhere in the world, and the fiscal track record of private insurers in this country is abysmal.

The overhead associated with private insurance averages 13% of premiums. It is less than 3% for Medicare and Medicaid, and less than 1% in Canada's single-payer program. Because of the crushing administrative burden imposed on the rest of the health care system by multiple private insurers, almost one quarter of US health expenditures are for billing and bureaucracy, compared with 11% of Canada's expenditures. A federal General Accounting Office study shows that if the United States streamlined administration to Canadian levels by adopting a single-payer system (eliminating the need for private insurance) the savings would be enough to cover health care for every uninsured American.

Managed competition proposes to add new layers of administration in the